WHAT IS CLAIMED:

1. A process for producing a high strength and high electrical conductivity copper, comprising:

melting and casting raw material to obtain an alloy containing 1-3 wt.% nickel, 0.2-0.7 wt.% silicon, remainder copper and unavoidable impurities;

solution annealing the alloy to produce an annealed alloy;

cold deforming the annealed alloy to produce a cold-deformed annealed alloy; and,

precipitation annealing the cold-deformed alloy at a temperature of 450-500°C for four to ten hours with a cooling rate of 10-20°C/ hour between the annealing temperature and a temperature of approximately 300°C.

2. The process of Claim 1, wherein phosphorous up to 0.010 wt.% is added as a deoxidizer during the melting step.

3. The process of Claim 1, wherein the raw material is cast into an ingot.

4. The process of Claim 3, wherein the ingot is hot rolled.

5. The process of Claim 1, wherein the raw material is continuously cast.

6. The process of Claim 1, further comprising the step of cold deforming the alloy prior to solution annealing.

7. The process of Claim 1, wherein the cold deforming comprises cold rolling.

8. The process of Claim 1, wherein the cold deforming comprises drawing.

9. The process of Claim 1, wherein the solution annealing step produces an alloy with a grain size up to 0.015 mm in combination with an electrical conductivity up to 26% IACS.

10. The process of Claim 1, further comprising a first cold deforming step prior to solution annealing with a reduction rate of at least 80% and a second cold deforming step after solution annealing with a reduction rate of 10 to 50%.

11. A process for producing a high strength and high electrical conductivity copper, comprising:

melting and casting raw material to obtain an alloy containing 1-3 wt.% nickel, 0.2-0.7 wt.% silicon, remainder copper and unavoidable impurities;

cold deforming the alloy with at least 80% reduction;

solution annealing the cold deformed alloy to a grain size of up to 0.015 mm in combination with an electrical conductivity up to 26% IACS;

cold rolling the cold deformed annealed alloy to between 10 and 50% reduction; and,

precipitation annealing the cold rolled annealed alloy at a temperature of 450-500°C for four to ten

hours with a cooling rate of 10-20°C/hour between the annealing temperature and a temperature of approximately 300°C.

12. The process of Claim 11, wherein phosphorous up to 0.010 wt.% is added as a deoxidizer during the melting step.

13. The process of Claim 11, wherein the raw material is cast into an ingot.

14. The process of Claim 13, wherein the ingot is hot rolled.

15. The process of Claim 11, wherein the raw material is continuously cast.

16. The process of Claim 11, further comprising the step of cold deforming the alloy prior to solution annealing.

17. The process of Claim 11, wherein the cold deforming comprises cold rolling.

18. A process for producing copper alloy with high strength and high conductivity, comprising:

melting and casting raw material to obtain an alloy containing 1-3 wt.% nickel, 0.2 to 0.7 wt. % silicon, remainder copper and unavoidable impurities;

hot rolling the alloy to form a hot rolled alloy;

cold rolling the hot rolled alloy to form a cold-

rolled alloy;

solution annealing the cold-rolled strip to produce an annealed alloy;

cold rolling the annealed alloy to form a cold-rolled annealed alloy; and,

precipitation annealing the cold-rolled annealed alloy at a temperature of 450-500°C for four to ten hours with a cooling rate of 10-20°C/hour.

19. A process for producing copper alloy with high strength and high conductivity, comprising:

melting and continuously casting raw material to obtain a alloy containing 1-3 wt.% nickel, 0.2 to 0.7 wt. % silicon, remainder copper and unavoidable impurities;

cold delivering the alloy to form a cold-rolled alloy;

solution annealing the cold-rolled alloy to produce an annealed alloy;

cold rolling the annealed alloy to form a cold-rolled annealed alloy; and,

precipitation annealing the cold-rolled annealed alloy at a temperature of 450-500°C for four to ten hours with a cooling rate of 10-20°C/hour.